

REMARKS

Clarifying amendments have been to claims 1, 4, 5, 6, 9, 14, 15, 17 and 18, and claims 2 and 24-32 have been cancelled. Previously withdrawn claims 24-32 have been cancelled without prejudice to Applicant's ability to file a continuation or divisional application directed to such claims. New claims 33-42 have been added to further clarify the scope of protection being sought.

The Examiner is thanked for her time and consideration in an interview with Mssrs. Smith, Greer and Thompson on December 12, 2006. During that interview, the differences between the present invention and the Schmidt and Gunther references were discussed, based on a proposed claim amendment submitted in advance by Applicants. The Examiner indicated that the Schmidt and Gunther references do not show a cast block in which are fixed a separate junction component and a separate pipe. In a subsequent brief discussion, the Examiner indicated concern whether the proposed claim language clearly identified the junction component as separate from the cast block. In response, the claim amendments herein add a "cast manifold block" as an element of the claims, and specify that the junction component and pipe, e.g., are fixed within the manifold block. It is respectfully submitted that this language clearly defines the cast manifold block, junction component and pipe as separate elements, with the junction component and pipe being fixed in the manifold block. As described below, the claims are amended are believed to clearly distinguish Schmidt and Gunther, and thus are seen to be allowable based on the art of record.

Claims 1-9, 11-13 and 16-23 have been rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt (U.S. 4,705,473). Reconsideration and withdrawal of these rejections is requested in view of amended claim 1 and the following remarks.

Independent claim 1 has been amended to include the subject matter of former claim 2 (now cancelled) and also to positively recite a cast manifold block as part of the manifold. Thus, amended claim 1 is now directed to an injection molding apparatus that comprises, among other things, a manifold that includes

the following three elements: (i) a cast manifold block; (ii) a junction component fixed in the manifold block and having an axial bore with a first end opening to an exterior surface of said manifold block, and at least one radial bore in fluid communication with the axial bore and having at least one opening to an outer surface of said junction component, and (iii) at least one pipe fixed in the manifold block, wherein said at least one pipe has a first end that engages the junction component at the opening of the radial bore, the junction component and the at least one pipe defining a manifold channel.

Applicant submits that Schmidt does not anticipate claim 1 as Schmidt does not disclose a manifold having the elements of claim 1. Firstly, Schmidt does not disclose a cast manifold block. The Office Action refers to column 3, lines 35-40 of Schmidt, which states that “[t]he manifold 44 is made of steel with an electric heating element 48 and plugs 50 vacuum cast or brazed in as described in ... U.S. Pat. No. 4,609,138...”. However, it should be noted that the referenced patent US 4,609,138 actually describes a casting-in-process whereby a heater or plug is attached to a pre-formed manifold by way of a cast material. The manifold block of Schmidt and US 4,609,138 itself is not cast during the process of affixing the heating element of plugs to the manifold. Thus, Schmidt does not disclose a cast manifold block.

Secondly, it is also noted that Schmidt does not disclose a junction component fixed in a cast manifold block and having the features described above. It is noted that the Office Action identifies opening 94 of sprue bushing 96 in Figure 1 of Schmidt as being the equivalent of the opening of the axial bore of the junction component as claimed, and the manifold channel 98 of manifold 44 as being the equivalent of the opening from the radial bore as claimed. Thus, it appears that the sprue bushing 96 and the manifold 44 of Schmidt collectively are seen to be equivalent to the junction component of claim 1. Applicant respectfully submits that if that is the case, then Schmidt fails to disclose a junction component fixed in the manifold block, as required by claim 1.

Thirdly, Applicant submits that Schmidt does not disclose a pipe fixed in the manifold block and having a first end that engages the opening of the radial bore of the junction component.

Accordingly, Schmidt does not disclose all the elements of amended claim 1, and applicant submits that claim 1 is novel and patentable over Schmidt. Claims 2-23 that depend from claim 1 add further novel features and are novel and patentable over Schmidt for at least the same reasons as claim 1.

By way of example of additional novel and patentable subject matter found in the dependent claims, claim 5 requires an additional nozzle pipe that is telescopically slidable relative to the at least one pipe, a feature that is not shown in Schmidt.

By way of further example of additional novel and patentable subject matter found in the dependent claims, claim 6 requires a support pillar component fixed in the manifold block, a feature that is not shown in Schmidt. Regarding the reference in the Office Action to Schmidt's collar portion 56 as the equivalent of the claimed support pillar, the collar portion 56 of Schmidt is not fixed in a block that defines the manifold.

Claims 1-5, 9, 11-13, 14-15, 17-18, and 21-23 have been rejected under 35 U.S.C. 102(b) as being anticipated by Gunther (U.S. 5,295,806). Reconsideration and withdrawal of these rejections is requested in view of amended claim 1 and the following remarks.

Applicant submits that Gunther does not anticipate claim 1 as Gunther does not disclose a manifold having the elements of claim 1. Firstly, Gunther does not disclose a cast manifold block. The Office Action identifies casing 12 in Gunther as being the equivalent of the manifold of claim 1 and the cast body 30 of the cartridge-like unit 30 as being the equivalent of the cast block as claimed. However, claim 1 as amended requires the presence of a cast manifold body, which clearly is not shown in Gunther. In Gunther, the cast portion 30 is a thin casting that serves merely to hold the heating coil 30 and other parts to the flow

tube 32 – the cast portion 30 of Gunther would not be considered by a person skilled in the art to be the equivalent of a cast manifold block.

Secondly, Gunther discloses neither a junction component nor a pipe fixed in a cast manifold block. It is noted that the Office Action appears to be taking the position that the flow tube 32 of Gunther is both the junction component and the pipe of claim 1. Applicant submits that claim 1 requires that the junction component and the pipe be separate, engaging, components, which is not shown or disclosed in Gunther. In Gunther, it can be seen from Fig. 1 that the flow tube 32 is made from a single piece of material that is machined down to the indicated proportions as evidenced by the integral flange (on the left) and the drilled bore requiring plugs 56. This is an important difference. In Gunther, as the thin casting 30 is not intended to provide structural strength but rather to secure the heating coil 38 and other parts to the flow tube 32, the integral nature of the flow tube 32 provides structural strength and the machining of the flow tube 32 provides dimensional accuracy of the connection (nozzle, sprue) openings. In contrast, in the manifold of claim 1, structural strength is provided by the cast manifold block while the dimensional accuracy of the connection (nozzle, sprue) openings is provided by the fact that the claimed junction component and pipe are separate parts (thereby allowing their positions to be fine tuned prior to casting).

Accordingly, Gunther does not disclose all the elements of amended claim 1, and applicant submits that claim 1 is novel and patentable over Gunther. Claims 2-23 that depend from claim 1 add further novel features and are novel and patentable over Gunther for at least the same reasons as claim 1.

By way of example of additional novel and patentable subject matter found in the dependent claims, claim 5 requires an additional nozzle pipe that is telescopically slidable relative to the at least one pipe, a feature that is not shown in Gunther.

-13-

Claim 10 has been rejected under 35 U.S.C.103 (a) as being unpatentable over Schmidt or Gunther in view of Yu (U.S. 6,544,027). Reconsideration and withdrawal of this rejection is requested for the following reason.

As indicated above, independent claim 1 is novel and patentable over each of Schmidt or Gunther. It is submitted that Yu does not disclose any features that would affect the patentability of claim 1, and accordingly claim 10 which depends from claim 1 is patentable for at least the same reasons as claim 1.

Based on the above, it is respectfully submitted that claims 1 and 3-23 as amended herein are allowable over Schmidt, Gunther, Yu and the other art of record. Favorable action is respectfully requested.

New Claims

New claims 33-42 have been added, including independent claims 33 and 38, to further clarify the protection being sought. The claims add no new subject matter and are supported by the specification and drawings as originally filed.

Turning first to new independent claim 33, such claim includes features similar to those found in original claims 1, 4 and 5, with further clarifying features. Dependent claims 34, 35, and 36 correspond to original claims 2, 3, and 9, respectively. New dependent claim 37, which adds the feature of a connector disk, is supported at paragraphs 0051-0053 of the specification as originally filed

Independent claim 33 is directed to an injection molding apparatus, comprising:

a manifold including (i) a manifold block, (ii) a junction component fixed in the manifold block and having an axial bore with a first end opening to an exterior surface of said manifold block for receiving a flow of melt material, and a radial bore in fluid communication with the axial bore and having an opening to an outer surface of said junction component (iii) a radial pipe fixed in the manifold block and having a first end engaging the junction component at the opening of said radial bore, and (iv) a nozzle pipe fixed in the manifold block and having a first

end engaging a second end of said radial pipe, one of said first end of said nozzle pipe and said second end of said radial pipe being telescopically slidable inside the other, the junction component, radial pipe and nozzle pipe defining a manifold channel for directing the flow of the melt material through said block. The injection molding apparatus of claim 33 also includes a nozzle defining a nozzle channel in fluid communication with said manifold channel for receiving the flow of melt material.

The cited references do not show or suggest such a combination, and in particular do not show a junction component, a radial pipe and a nozzle pipe fixed in a block that defines a manifold, with the radial pipe and nozzle pipe having respective ends that are telescopically slidably engaged.

New independent claim 38 includes limitations similar to those found in original claims 1, 6 and 8, with further clarifying features. New dependent claims 39, 40, 41, and 42 correspond to original claims 2, 3, 7 and 9, respectively.

Independent claim 38 is directed to an injection molding apparatus that comprises a manifold including, (i) a manifold block, (ii) a junction component fixed in the manifold block and having an axial bore with a first end opening to an exterior surface of said manifold block for receiving a flow of melt material, and at least one radial bore in fluid communication with the axial bore and having at least one opening to an outer surface of said junction component, (iii) at least one pipe fixed in the manifold block, wherein said at least one pipe has a first end that engages said junction component at the at least one opening of said radial bore, the junction component and at least one pipe defining a manifold channel for the flow of melt material, and (iv) at least one support pillar component coupled to said at least one pipe and fixed in said manifold block, said support pillar component defining an axial bore extending a height of said manifold block. The injection molding apparatus also includes a nozzle defining a nozzle channel in fluid communication with the manifold channel for receiving the flow of melt material, and a valve pin retractably extending through said block via said axial bore of said support pillar component and into said nozzle channel.

-15-

Applicant submits that such combination is not disclosed in or suggested by the cited references, and in particular the elements of the manifold, namely a junction component, pipe, and support pillar fixed in a manifold block and having the above features are not shown.

Conclusion

In view of the foregoing remarks, this Application should be in condition for allowance. A Notice to this affect is respectfully requested. The Examiner is respectfully urged to call Applicants' representative to resolve any issues that may be remaining after this amendment.

Applicants hereby petition for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-3661.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned at (508) 616-2900, in Westborough, Massachusetts.

Respectfully submitted,



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Attorney Docket No.: 1040-001

Dated: December 26, 2006